Marked-Up Version of Substitute Specification

~~Description~~SPECIFICATION

TITLE OF THE INVENTION

DISASTER AND EMERGENCY MODE FOR MOBILE TELEPHONES

BACKGROUND OF THE INVENTION

The present invention relates to methods and devices for controlling the establishment of connections to mobile stations present in an area hit by a disaster.

In a ~~disaster~~disaster, experience has shown that mobile radio networks in the area hit by the disaster are frequently overloaded, as users of many mobile stations present in this area try to make emergency calls.

It is known from WO 94/28687 A1 that the same message (for ~~example~~ example, relating to the disaster) can be transmitted simultaneously to all mobile stations in an area hit ~~by a~~ through a disaster through broadcast from an alarm center, for which purpose the mobile stations in the area in question can be switched to inactive with the effect that ongoing calls are interrupted and new calls cannot be made.

~~The~~ An object of the present ~~invention is~~invention is, therefore, to allow mobile stations to establish a connection with the most effective regulation possible avoiding overloading of the voice connection channels present in an area hit by a disaster. ~~The object is achieved in each instance by the subject matter of the independent Claims.~~

SUMMARY OF THE INVENTION

~~Since~~Since, according to the present ~~invention~~ invention, a sequence is transmitted ~~by means of~~ via a cell broadcast (~~e.g.~~e.g., SMS-CB in GSM, etc.) to all mobile stations in at least one cell in the area in question, ~~by means of~~ through which sequence a mobile station can request the establishment of a connection (in particular, a voice connection) to a destination address, it is possible to control the establishment of connections to the mobile stations in the area ~~whilst~~ while still avoiding network overload. The cell broadcast can be in the form of a short ~~message~~message, for example. Alternatively or ~~additionally~~additionally, it is also possible to inform all the mobile stations present in the area ergonomically about

the circumstances of the disaster via a circuit switched group call function (line-based transmission of voice information to all mobile stations in the group in at least one cell).

In ~~particular~~particular, it is possible to control the mobile stations (mobile telephones) by activating their SIM application toolkit function (if this exists in the SIM card of the mobile station), to control the mobile stations efficiently so ~~that~~that, for ~~example~~example, they themselves cannot activate calls or can only activate calls to predefined ~~numbers~~numbers, and/or that they communicate a mobile radio terminal number or mobile radio subscriber ID card number to an emergency center (the address of which ~~ean~~can, for ~~example~~example, be transmitted beforehand with the ID).

According to one embodiment of the ~~present~~present ~~invention~~invention, mobile stations are enabled during a disaster to call a number provided for this purposes as destination, which telephone number ~~ean~~can, for ~~example~~example, be made up of the sequence and the mobile station device number, to allow identification of the individual mobile radio terminal during the call in an efficient manner.

In order to detect all subscribers in the disaster area in ~~an~~ a similarly efficient manner, the mobile stations can be prompted to transmit their mobile radio terminal number (IMEI) and/or the mobile radio subscriber ID card number (IMSI/MSISDN) of data representing the mobile radio subscriber ID card (SIM) contained in the mobile station to a predefined telephone number (~~e.g.~~e.g., by SMS, CLIP, etc.).

~~Further features and advantages of the invention will emerge from the further Claims and the description below of an exemplary embodiment with reference to the drawing, in which:~~

Additional features and advantages of the present invention are described in, and will be apparent from, the following Detailed Description of the Invention and the Figures.

BRIEF DESCRIPTION OF THE FIGURES

Figure 1 shows a schematic illustration of the control of the establishment of connections from mobile stations present in an area hit by a disaster.

DETAILED DESCRIPTION OF THE INVENTION

Figure 1 shows an alarm ~~center 1,~~ center 1 which, in a disaster, prompts a switching device (MSC) 2 to transmit a cell broadcast (by SMS, etc.) via a mobile radio network indicated by a base station 3 to all mobile stations 5, 6 in at least one mobile radio cell of a mobile radio network 3, 7, 8 in the area 7, 8 hit by the disaster.~~, which~~ The message 4 prompts the mobile stations 5, 6 to request the establishment of a connection (wanted by the user of the mobile station or serving to identify all the mobile stations present in the area 7, 8) ~~in~~ in the future by specifying the sequence (as an SMS or part of a telephone number to be called) in a request (8).

The sequence ~~can~~can, for ~~example~~example, be any numerical number or letter sequence, etc. When transmitting a sequence 4, details of the disaster ~~can~~ also can be transmitted to mobile radio terminals 5, 6 as text (SMS, etc.) or a voice message, etc.

In the case of a request 8 (by a mobile station 6) for establishment of a call via the mobile radio network 3 to a switching device (2, 9), where the call establishment request 8 does not contain the sequence (4) (and cannot subsequently transmit it), establishment of a call is rejected by the switching device 2, 9, to prevent overloading of the mobile radio network during the disaster by controlling connection establishment 8 in this way. In the case of a request 8 to establish a call from a mobile station 6 via the mobile radio network 3 to a switching device (2, 9), where the call establishment request 8 contains the sequence (4) (or can transmit it subsequently), the switching device 2, 9 establishes the call. ~~Expediently~~ Preferably, ~~however~~ however, the connection is only established if the called destination (telephone number, etc.) is also a destination ~~(e.g.~~ which is known to the switching device or previously communicated by an emergency ~~center)~~, for example.

A mobile station 6 tries ~~for example~~, such as, after communication of the ~~sequence 4~~ sequence 4, to establish a connection (in ~~particular~~ particular, a voice connection) to a destination (~~e.g.~~ e.g., an operator telephone number of an alarm center (1)), by calling a telephone number made up for this purpose of the ~~(previously communicated)~~ previously communicated sequence 4 ~~and~~ and, in some ~~instances~~ instances, data in its MSISDN, whereby a switching device 9 in the MSC 2 ascertains that the sequence 4 was transmitted as authorization data (giving entitlement to a call) in this telephone number, whereupon the mobile station 6 is switched through to the called destination (operator, etc.) in the alarm center 1. Alternatively or additionally, ~~(for example~~ such as via a SIM application toolkit of a mobile ~~station)~~ station, transmission of the sequence 4 (as proof of entitlement) can also prompt the mobile stations 6 independently to establish a voice connection or send a text message, which transmits identification of the mobile station 6 and/or data enabling the sequence 4 (for ~~example~~example, the mobile station terminal number IMEI, a mobile radio subscriber ID card number of a SIM in the mobile station ~~6 etc.)~~ 6, etc.).

When the disaster is over, the mobile stations MS 5, 6 and switching devices MSC can be returned to normal status by a message specifically for this purpose, ~~so that~~ wherein the mobile stations can again call any destination without transmitting a sequence and the switching devices can switch these through again without verifying a sequence.

Although the present invention has been described with reference to specific embodiments, those of skill of the art will recognize that changes may be made thereto without departing from the spirit and scope of the present invention as set forth in the hereafter appended claims.

ABSTRACT OF THE DISCLOSURE

~~The invention provides a~~A method and device are provided for allowing an efficient control of the establishment of connections of mobile radio phones that are present in an area hit by a disaster. According to the present invention, a sequence ~~(4)~~ is transmitted in a single broadcast to all mobile stations ~~(5, 6)~~ in at least one cell ~~(7, 10)~~ of a mobile radio network present in the respective area. According to ~~said~~ the~~sequence~~sequence, a connection to a mobile station ~~(6)~~ in ~~said~~the area is only established if the mobile station requesting establishment of the connection communicates ~~said~~ the sequence ~~(4)~~ when requesting establishment of the connection.

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of claims:

Claims 1-8 (cancelled)

Claim 9 (new): A method for controlling establishment of connections to mobile stations present in an area hit by a disaster, the method comprising:

transmitting a sequence in a message sent to the mobile stations in at least one cell of a mobile radio network present in the area; and

providing that a connection only be established from a mobile station in the area to a destination called by the mobile station if the mobile station requesting the connection establishment communicates the sequence.

Claim 10 (new): A method for controlling establishment of connections to mobile stations as claimed in claim 9, wherein the sequence is transmitted as a cell broadcast short message.

Claim 11 (new): A method for controlling establishment of connections of mobile stations as claimed in claim 9, wherein the sequence is transmitted as a circuit switched group call.

Claim 12 (new): A method for controlling establishment of connections of mobile stations as claimed in claim 9, wherein the transmission of the sequence occurs via an SIM application toolkit of a mobile station, the SIM application toolkit prompting the mobile station to transmit data representing at least one of a telephone number of the mobile station and a terminal number of the mobile radio to one of the mobile radio network and a destination.

Claim 13 (new): A method for controlling establishment of connections of mobile stations as claimed in claim 9, wherein a telephone number of a subscriber, which a mobile station may call during the disaster, consists of the sequence and at

least one of at least part of a device number of the mobile station and a subscriber ID number of the mobile station..

Claim 14 (new): A method for controlling establishment of connections of mobile stations as claimed in claim 9, further comprising scanning at least one of telephone numbers and mobile station device numbers of the mobile stations in the area to substantially ascertain which of the mobile stations are present in the area.

Claim 15 (new): A switching device for controlling establishment of a connection to mobile stations present in an area hit by a disaster, comprising:

parts for transmitting a sequence in a message sent to the mobile stations in at least one cell of a mobile radio network present in the area;

parts for receiving, in an event of the disaster, the sequence with a request for establishment of a connection to a destination from a mobile station in the area; and

parts for establishing the connection to the destination, if the mobile station can specify the sequence and the destination is a destination provided for call establishment.

Claim 16 (new): A mobile station, comprising:

parts for receiving, in an event of a disaster in an area in which the mobile station is present, a sequence transmitted in a message sent to the mobile station in at least one cell of a mobile radio network present in the area; and

parts for transmitting the sequence with a request for establishment of a connection to a destination to the mobile radio network.

REMARKS

The present amendment makes editorial changes and corrects typographical errors in the specification, which includes the Abstract, in order to conform the specification to the requirements of United States Patent Practice. No new matter is added thereby. Attached hereto is a Substitute Specification including a marked-up version of the changes made thereto via by the present amendment.

In addition, the present amendment cancels original claims 1-8 in favor of new claims 9-16. Claims 9-16 have been presented solely because the revisions by red-lining and underlining which would have been necessary in claims 1-8 in order to present those claims in accordance with preferred United States Patent Practice would have been too extensive, and thus would have been too burdensome. The present amendment is intended for clarification purposes only and not for substantial reasons related to patentability pursuant to 35 U.S.C. §§101, 102, 103 or 112. Indeed, the cancellation of claims 1-8 does not constitute an intent on the part of the Applicants to surrender any of the subject matter of claims 1-8.

Early consideration on the merits is respectfully requested.

Respectfully submitted,
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